Claims

[1] 1. An interleaving method used for a low density parity check (LDPC) encoding process, the method comprising:
generating more than one code word vector by generating parity information on the basis of a parity check matrix;
dividing the generated code word vector into interleaving units, each having a size determined on the basis of bit lengths between 1s included in a row of the parity check matrix; and
interleaving the more than one code word vector using the interleaving unit.
2. The method of claim 1, wherein the dividing of the generated code word vector into interleaving units comprises:
extracting a maximum range bit length including only one 1s among all 1s included in the row of the parity check matrix; and determining the size of the interleaving unit on the basis of the extracted bit lengths.
3. The method of claim 2, wherein the determining of the size of the interleaving unit comprises:
determining an average value of the extracted bit lengths as the size of the interleaving unit.
4. The method of claim 2, wherein the determining of the size of interleaving unit comprises:
determining a minimum value of the extracted bit lengths as the size of the interleaving unit.
5. The method of claim 1, whereinthe dividing the generated code word vector into interleaving units comprises:
extracting bit lengths between all 1s existing in the row of the parity check matrix;
calculating an average value of the extracted bit lengths; and
determining a bit length corresponding to double the calculated average value as the size of the interleaving unit.
6. The method of claim 1, wherein the dividing of the generated code word vector into interleaving units comprises:
determining the size of the interleaving unit on the basis of the length of the code word vector and the row weight of the parity check matrix; and
dividing the code word vector into the interleaving units having the determined

size.

7. The method of claim 6, whereinthe determining of the size of interleaving unit comprises:

determining a smaller value than a value corresponding to double the value divided the length of the code word vector by the row weight as the size of the interleaving unit.

8. Amethod of determining the size of interleaving unit in an LDPC encoding process, the method comprising:

extracting valid code word bits which represents cord word bits corresponding to 1s in a row of a parity check matrix in a code word vector;

extracting bit lengths between the valid code word bits in the code word vector; and

determining the size of the interleaving unit on the basis of the bit lengths between the valid code word bits.

9. The method of claim 8, wherein the determining of the size of the interleaving unit comprises:

determining a smaller value than double the minimum value of the bit lengths between the valid code word bits as the size of the interleaving unit.

10. The method of claim 8, wherein the determining of the size of interleaving unit comprises:

determining a smaller value than double the average value of the bit lengths between the valid code word bits as the size of the interleaving unit.

11. The method of claim 10, wherein the average value of the bit lengths between the valid code word bits is avalue obtained by dividing the length of the code word vector by the row weightof the parity check matrix.

12. The method of claim 8, wherein the determining of the size of the interleaving unit comprises:

determining the size of the interleaving unit so that $1<BI<2n/Wr$, where BI indicates the size of the interleaving unit, n indicates the length of the code word vector, and Wr indicates the row weight of the parity check matrix.